US Army Corps
Of Engineers
Wilmington District

PUBLIC NOTICE

Issue Date: August 3, 2005
Comment Deadline: September 2, 2005
Corps Action ID #: 200501030

All interested parties are hereby advised that the Wilmington District, Corps of Engineers (Corps) has received an application for work within jurisdictional waters of the United States. Specific plans and location information are described below and shown on the attached plans. This Public Notice and all attached plans are also available on the Wilmington District Web Site at www.saw.usace.army.mil/wetlands

Applicant: National Park Service
131 Charles Street
Harkers Island, North Carolina 28531

Authority

The Corps will evaluate this application and a decide whether to issue, conditionally issue, or deny the proposed work pursuant to applicable procedures of Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899.

Location

The project site is located west of Cape Lookout Lighthouse, Cape Lookout, adjacent to Back Sound and Lookout Bight, Carteret County, North Carolina. Latitude 34-37-30 and Longitude 76-31-33.

Existing Site Conditions

Cape Lookout National Seashore is located three miles off the mainland coast in the central coastal area of North Carolina and occupies more than 29,000 acres of land and water from Ocracoke Inlet on the northeast to Beaufort Inlet to the southwest. The national seashore consists of four main barrier islands (North Core Banks, Middle Core Banks, South Core Banks, and Shackleford Banks), which consist mostly of wide, bare beaches with low dunes covered by scattered grasses, flat grasslands bordered by dense vegetation, and large expanses of salt marsh alongside the sound. There are no road connections to the mainland or between the islands. The project area centers on the estuarine shoreline in the vicinity of the lighthouse and associated historic structures, located within the influence of Barden Inlet and at the juncture of Shackleford Banks and the south end of Core Banks. The project is located adjacent to the existing federal navigation channel. The beachfront within the project area serves as a high-use

recreation beach for visitors transported to the existing pier/dock via ferry vessels from Harkers Island and Beaufort or by private boats.

The Cape Lookout Lighthouse and associated structures is listed in the National Register of Historic Places under the name "Cape Lookout Light Station." Continuous erosion of the estuarine shoreline is threatening eventual damage and possible destruction of the lighthouse and historic structures. Evidence of the threats to the structures is the loss of the coalhouse in 1999 due to Hurricane Isabelle. Storms and high tides continue to erode the remaining area, threatening the keeper's quarters and summer kitchen as well as the lighthouse itself. In an effort to slow the process, in March of 2005 permits were obtained, and sandbags were placed along the shoreline in front of the historic buildings as a temporary measure to minimize damage.

The proposed placement of beach quality material along the estuarine shoreline will assist in protecting the lighthouse and associated historic structures from further damage until a long-term solution can be developed. Based on past erosion rates, it is believed that the placement of material within this area as proposed would provide 7 to 10 years of protection while the longer solution can be investigated. Without this effort, the buildings are in immediate danger of damage and or destruction.

Applicant's Stated Purpose

The purpose of the project is to provide protection of the lighthouse and associated historic structures and place sand within the existing recreation beach area.

Project Description

The applicant provided the following description of the proposed project. The referenced figures and plans are attached to the public notice.

The project involves the placement of approximately 60,000 cubic yards of beach quality material along two sections of beach, divided by the existing pier, designated as the northern fill area and the southern fill area. The lighthouse and associated historic structures are located adjacent to the southern fill area. Based on the need for added protection in this area, the proposed action includes the construction of a berm and the placement of a geotextile tube structure as part of the placement of fill in the southern fill area. Hydrographic surveys and sediment sampling of the adjacent navigation channel were performed in 2005 to assist in identifying possible borrow sources for the project Figure 2 shows the federal navigation channel segmented into Area 1 – Upper Limits of the Channel and Area 2 – Lower Limits of the Channel. Based on the results of sediment analysis, the preferred beachfill borrow source is located in the Lower Limits of the channel and is designated as Site B. Each segment of the proposed action is discussed below:

Beachfill: The project has been separated into two sections, designated as the Northern Fill and Southern Fill areas, as shown on Figure 3. A total of approximately 60,000 cubic yards of beach quality material consisting of less than 5% silt will be placed within the project area for a total linear length of 2,500 feet.

- **Northern Fill Area:** Extends approximately 1,000 linear feet northward from the existing pier, transitioning into the existing shoreline. The width of this area is limited to the available area between the existing beach and the existing deep-water slough that hugs the shoreline in this area. The maximum width in this area is approximately 50 feet. The elevation of the beach fill will tie into the existing beach elevation, estimated to be approximately 3.5 feet National Geodetic Vertical Datum (NGVD).

- **Southern Fill Area:** Extends approximately 1600 linear feet southward from the existing pier, transitioning into the existing shoreline. The maximum width in this area is approximately 100 feet. The beach fill will tie into the existing beach elevation, estimated to be approximately 3.5 feet NGVD.

Sand Berm: To provide added protection to the lighthouse and associated historic structures, a berm is proposed along the southern fill area. The berm would be constructed for a distance of approximately 1250 feet, at a height of approximately 7.5 feet NGVD, and a width of 15 feet. No berm is proposed for the northern fill area.

Geotextile Tube Structure: Placement of a 500-foot geotextile tube structure within the Southern Fill Area is proposed to provide protection from storm and wind damage for the historic structures and lighthouse. The 500-foot long, 20 to 24 foot circumference, 6-foot high tube would be positioned empty and then filled by inserting a dredge discharge pipe into ports on the tops of the tube. Approximately 1,000 cubic yards of sediment would be obtained from the submerged region between the mean-low-water line and the –6 foot contour in a 1,000 foot range of the berm. The fill area for the geotextile tube structure would then be backfilled as part of the overall project. The tube would be placed on top of a fabric apron integral to the placement of the tube, held in place by anchor tubes. The placement of the geotextile tube within this area would provide a shore protection structure for the purpose of wave attenuation, sediment retention and stabilization. Approximately 2 feet of sand would be discharged on top of the tube, sufficiently covering and embedding the tube within the berm at a final height of 7.5 feet NGVD. A schematic of a typical geotextile tube structure is shown on Figure 4.

ALTERNATIVES

A range of alternatives were considered for the purpose of protecting the Cape Lookout Lighthouse and associated historic structures, and providing a recreation beach for park users within the beachfill area. Several alternatives were evaluated to provide suitable beachfill material for the proposed project, including sediment sampling and surveys. Borrow areas were evaluated to determine compatibility of borrow material and the existing substrate within the project area. The preferred placement area and borrow

source area have been identified as meeting the project purpose of providing suitable protection to the lighthouse and historic structures and a recreation beach within the project area. Other alternatives were explored that would provide greater protection to the lighthouse and associated historic structures; however, they did not meet the purpose and need of the project to provide immediate protection to the structures and to provide a recreation beach for users. Therefore, these alternatives, although discussed have been eliminated from further study at this time. These alternatives will be addressed in the proposed future long-term study.

Beachfill Alternatives.

1. **Estuarine Beach Fill Without Berm.** This alternative involves the placement of approximately 60,000 cubic yards of material along the estuarine shoreline. Approximately 50,000 cubic yards of material would be placed along the southern shoreline (running from the existing pier southward toward Barden Inlet for a distance of 1,600 linear feet at a width of about 100 feet. An additional 10,000 cubic yards of material would be placed along the northern shoreline extending from the existing pier for a distance of 1,000 feet at a width of approximately 50 feet. The elevation of the beach fill would tie into the existing beach elevation, estimated to be approximately 3.5 feet (NGVD). No other features other than placement of material within this area at the natural high tide line would occur as part of this alternative. Although this alternative provides a recreation beach for users, it does not afford the needed protection to the lighthouse and associated historic structures; therefore, this alternative does not meet the project purpose.

2. **Estuarine Beachfill with Sand Berm.** This alternative would be the same as that described above, with the additional feature of a sand berm constructed along the beachfront adjacent to the lighthouse and structures for a distance of 1,250 linear feet at a height of 7.5 feet NGVD and a top width of 15 feet. The placement of a berm along this section of the project would provide added protection to the structures from storm and wind surges. Although this alternative meets the project purpose, additional protective measures were evaluated, resulting in alternative 3 becoming the preferred plan. .

3. **Estuarine Beachfill With Sand Berm and Geotextile Tube Structure (Preferred Alternative) (Figure 3).** This alternative is the proposed action and includes the placement of approximately 60,000 cubic yards of beachfill along the eroded estuarine beachfront (10,000 cubic yards along the northern shoreline and 50,000 cubic yards along the southern shoreline) at an elevation of 3.5 feet NGVD for a total distance of 2,600 linear feet, tapering in at the existing pier. A sand berm at an elevation of 7.5 feet NGVD at a distance of 1,250 linear feet would be constructed along the southern shoreline. This alternative adds the placement of a 500 linear foot geotextile tube structure within the berm in the vicinity of the historic structures. Filling of the geotextile tube would require borrowing an estimated 1,000 cubic yards of sandy material from the nearshore area between the mean-low-water line and the -6 foot contour. The borrow area would then be replenished during the placement of beachfill. The structure would provide added protection to the structures until a long-term solution to the erosion problems can be

investigated. This alternative is preferred based on the need to provide maximum protection for the lighthouse and associated historic structures while staying within the project purpose and need.

This alternative requires periodic maintenance events that may include bulldozing or the use of other placement methods to place additional sand within the beach fill area to assure the geotextile tube structure remains embedded in the berm.

Beachfill Borrow Source Alternatives.

1. Area 1 – Upper Limits of Federal Channel. Borrowing beachfill material from the upper limits of the federal navigation channel, would include the removal of very fine sand from the channel, and transporting the material to the beachfront for a distance of about 3 miles, reference Figure 2. The removal of 60,000 cubic yards of material within this area would not eliminate the existing shoals within the federal channel; therefore, this area may be dredged, with the approximately 120,000 cubic yards of sandy material being placed on the adjacent sandbag island using the control-of-effluent method of disposal. Sediment sampling indicates that the material is beach quality sand with less than 5% silt; however, the material is very fine and is not the most suited material to be placed within the project area. Therefore, the lower limits of the channel were investigated to determine a more suitable sand borrow source. The upper limits of the channel have been historically dredged by a hydraulic pipeline dredge with the material being placed on Sandbag Island using the control-of-effluent method of disposal. Maintenance dredging of the federal navigation channel is the responsibility of the U.S. Army Corps of Engineers, Wilmington District and is covered under separate environmental documentation and state/federal clearances and is; therefore, separate from the plan for the NPS Protection of Lighthouse and Associated Historic Structures project. Based on the fines within the upper limits of the channel, and a more suitable alternative borrow area being found in the lower limits of the channel, alternative 1 is not the preferred borrow area.

2. Area 2 – Lower Limits of the Federal Channel (Preferrred Borrow Area). Beachfill would be obtained by dredging the lower limits of the federal channel (reference Figure 2). As shown on Figure 5, the area was broken up into three areas, designated as A, B, and C. Grain size analysis and a compatibility analysis were performed on samples taken from all three areas. All three sites contain beach quality sand that is compatible with the existing substrate of the project area; with material in Area A containing a finer grain size than that of B or C, but still meeting the compatibility requirements. Area C is closest and has the best sand but borrow from that area may adversely effect the shoreline and proposed beachfill performance; therefore, due to its close proximity to the project area and the protection it provides Area C was eliminated from further consideration. With the elimination of Area C, Area B is the best suited borrow area, and is therefore selected as the preferred borrow site. Preliminary findings suggest that Area B contains the needed cubic yardage; however, if final surveys indicate a need for additional material, the western section of Area A would be used. Reference Figures 6 and 6a for grain size distribution for all borrow areas investigated.

Other Alternatives Evaluated During Initial Project Review.

Other alternatives evaluated and determined not to meet the project purpose and need include: 1) construction of a rock groin or sill along or adjacent to the southern fill area; 2) relocation of the channel; 3) relocation of the lighthouse and/or historic structures and 4) no action. These alternatives along with others would be investigated further as part of the future long-term study to provide protection to the lighthouse and associated historic structures.

1. **Construction of a Rock Groin and/or Sill Along or Adjacent to the Southern Fill Area.** This alternative would afford greater protection to the lighthouse and associated historic structures; however, it does not meet the purpose and need for this action. It is recognized that this alternative, along with other alternatives that would provide additional protection to the historic structures needs to be evaluated further as a possible long-term solution to the erosion problems within the project area. However, further investigation of this alternative, as well as other long-term solutions are outside the purpose of the identified project; therefore, this alternative is not feasible at this time.

2. **Relocation of Channel**. The relocation of the inlet channel away from the lighthouse and historic structures would require filling of open waters (inlet gorge) and adjacent areas and redirecting the flow of the channel to the west. It is assumed that this alternative would require a study of the inlet complex, continuous maintenance dredging and possible other initiatives. It has been determined that this alternative does not meet the immediate need of providing protection to the lighthouse and historic structures, but should be evaluated further during the long-term study.

3. **Relocation of Lighthouse and Historic Structures.** Relocation of the lighthouse and/or historic structures has been evaluated and determined not-feasible at this time, as there is no readily apparent location on the barrier island to reestablish the structures. This alternative will be more closely examined in the long-term study. Since this alternative cannot be implemented quickly, it was eliminated from evaluation.

4. **No action**. The no action alternative would result in the continued erosion of the beachfront, resulting in damage and possible loss of historic structures and lighthouse of national significance and continued erosion of the recreation beach. The no action alternative is not an acceptable solution.

MAINTENANCE REQUIREMENTS

It is recognized that periodic maintenance would be required to assure the continued protection of the lighthouse and historic structures and recreation beach through the placement of material on the beachfront, the berm, and the coverage of the geotextile tube structure. This maintenance would continue to be required until a longer term solution could be studied and implemented for the project area. Maintenance may include renourishment of the area through the transporting of material by truck, bulldozer, and/or

placement through dredging and disposal. The maintenance cycle for this work has not been calculated and is dependent on storm activity. The project would be monitored by the NPS and maintenance provided as needed. Only suitable beach quality material would be used for maintenance of the beach.

TIMING

To avoid possible adverse impacts to environmental resources as well as recreational usage of the project area, initial work and future maintenance would be scheduled to occur between October 1 and March 31.

AFFECTED ENVIRONMENT

The environmentally preferred alternative would result in a positive impact to recreation, cultural resources, and land use. No adverse impacts to water resources, air quality, vegetation, wildlife and wildlife habitat, threatened, endangered, or special concern species, cultural resources or visitor use are expected to occur. An Environmental Assessment fully disclosing the project and discussing the affected environment is currently being prepared. See attachment for more information and plans.

Other Required Authorizations

This notice and all applicable application materials are being forwarded to the appropriate State agencies for review. The Corps will generally not make a final permit decision until the North Carolina Division of Water Quality (NCDWQ) issues, denies, or waives State certification required by Section 401 of the Clean Water Act (PL 92-500). The receipt of the application and this public notice in the NCDWQ Central Office in Raleigh serves as application to the NCDWQ for certification. A waiver will be deemed to occur if the NCDWQ fails to act on this request for certification within sixty days of the date of the receipt of this notice in the NCDWQ Central Office. Additional information regarding the Clean Water Act certification may be reviewed at the NCDWQ Central Office, 401 Oversight and Express Permits Unit, 2321 Crabtree Boulevard, Raleigh, North Carolina 27604-2260. All persons desiring to make comments regarding the application for certification under Section 401 of the Clean Water Act should do so in writing delivered to the North Carolina Division of Water Quality (NCDWQ), 1650 Mail Service Center, Raleigh, North Carolina 27699-1650 Attention: Ms Cyndi Karoly by August 26, 2005.

The applicant has certified that the proposed work complies with and will be conducted in a manner that is consistent with the approved North Carolina Coastal Zone Management Program. Pursuant to 33 CFR 325.2 (b)(2) the Corps is, by this notice, forwarding this certification to the North Carolina Division of Coastal Management (NCDCM) and requesting its concurrence or objection. Generally, the Corps will not issue a Department of the Army (DA) permit until the NCDCM notifies the Corps that it concurs with the applicant's consistency certification.

Essential Fish Habitat

This notice initiates the Essential Fish Habitat (EFH) consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. The Corps' initial determination is that the proposed project may adversely impact EFH or associated fisheries managed by the South Atlantic or Mid Atlantic Fishery Management Councils or the National Marine Fisheries Service. These impacts to EFH include destruction of habitat at the borrow and fill site, siltation plums, erosion and sedimentation issues, time frame work is performed (fish moratoriums) and water quality issues.

Cultural Resources

The Corps has consulted the latest published version of the National Register of Historic Places and is not aware that any registered properties, or properties listed as being eligible for inclusion therein are located within the project area or will be affected by the proposed work. Presently, unknown archeological, scientific, prehistoric, or historical data may be located within the project area and/or could be affected by the proposed work.

Endangered Species

The Corps has reviewed the project area, examined all information provided by the applicant and consulted the latest North Carolina Natural Heritage Database. Based on available information, the Corps has determined there may be species listed as threatened or endangered or their critical habitat formally designated pursuant to the Endangered Species Act of 1973 (ESA) within the project area. A final determination on the effects of the proposed project will be made upon additional review of the project and completion of any necessary biological assessment and/or consultation with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service.

Evaluation

The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values (in accordance with Executive Order 11988), land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people. For activities involving the discharge of dredged or fill materials in waters of the United States, the evaluation of

the impact of the activity on the public interest will include application of the Environmental Protection Agency's 404(b)(1) guidelines.

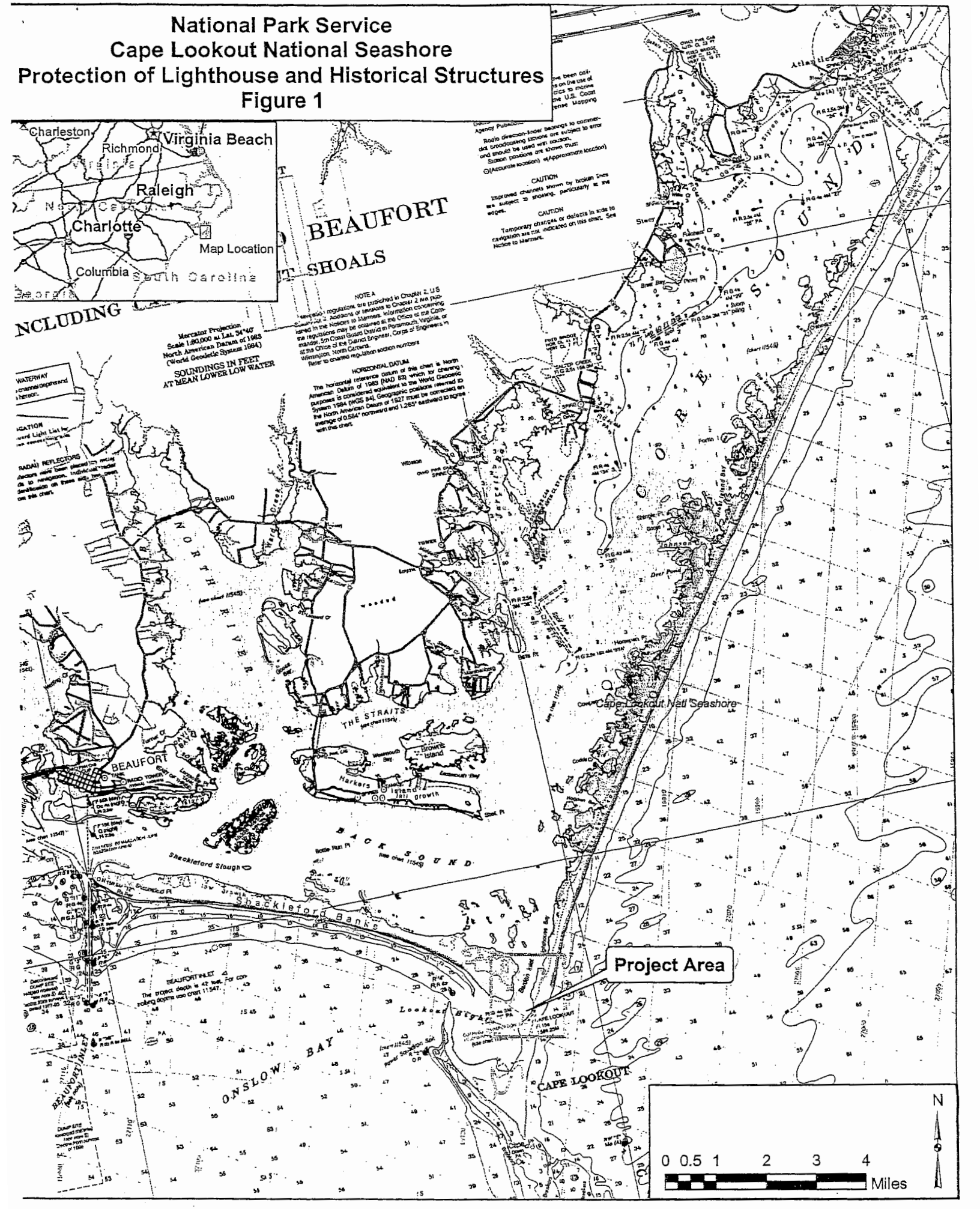
Commenting Information

The Corps is soliciting comments from the public; Federal, State and local agencies and officials; Indian Tribes and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment (EA) and/or an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA). Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

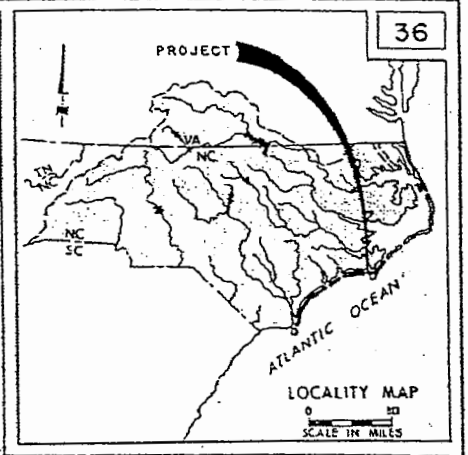
Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider the application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing. Requests for a public hearing shall be granted, unless the District Engineer determines that the issues raised are insubstantial or there is otherwise no valid interest to be served by a hearing.

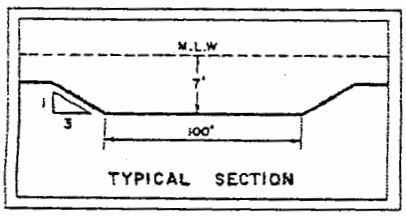
Written comments pertinent to the proposed work, as outlined above, will be received by the Corps of Engineers, Wilmington District, until 5pm, September 2, 2005. Comments should be submitted to Henry Wicker, Project Manager for this project.

National Park Service
Cape Lookout National Seashore
Protection of Lighthouse and Historical Structures
Figure 1



National Park Service
Cape Lookout National Seashore
Protection of Lighthouse and Historical Structures
Figure 2





Mileage is measured from a point N57°W 8 4500' from Cape Lookout Lighthouse.

CHANNEL FROM BACK SOUND TO LOOKOUT BIGHT, NORTH CAROLINA

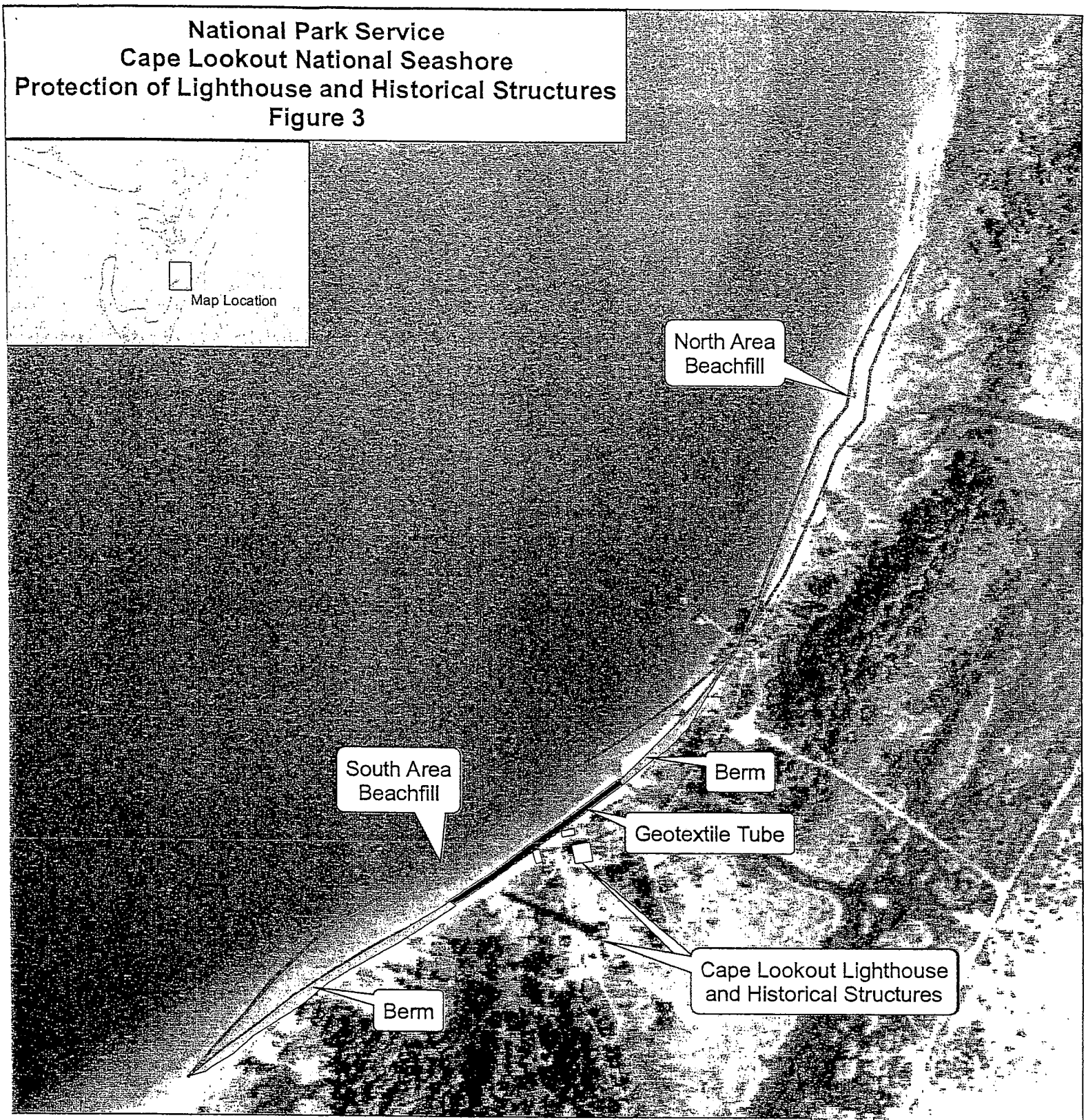
SCALE OF FEET

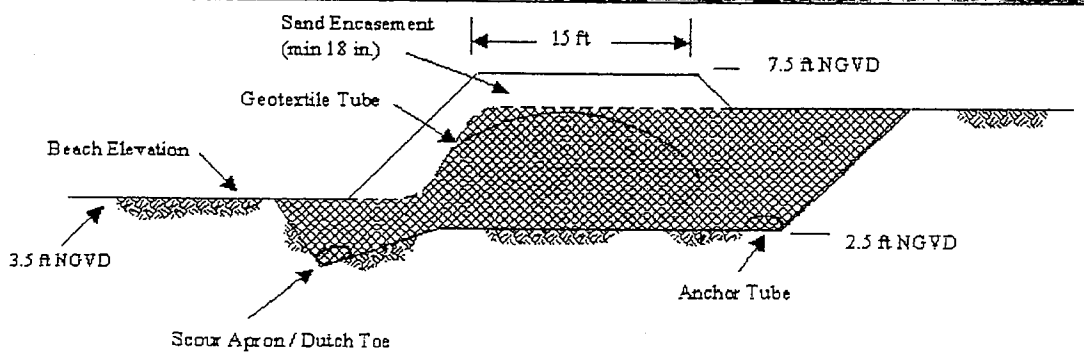
2000 0 4000 8000 12000

CORPS OF ENGINEERS WILMINGTON, N.C.

MAP REVISED SEP 1980

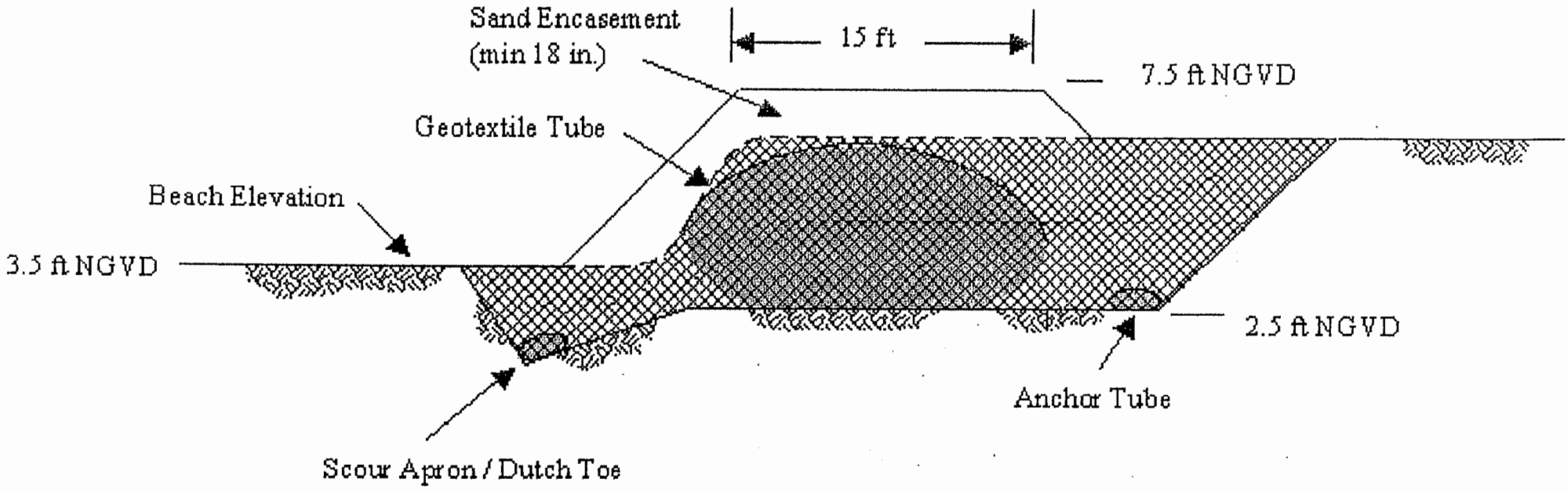
National Park Service
Cape Lookout National Seashore
Protection of Lighthouse and Historical Structures
Figure 3





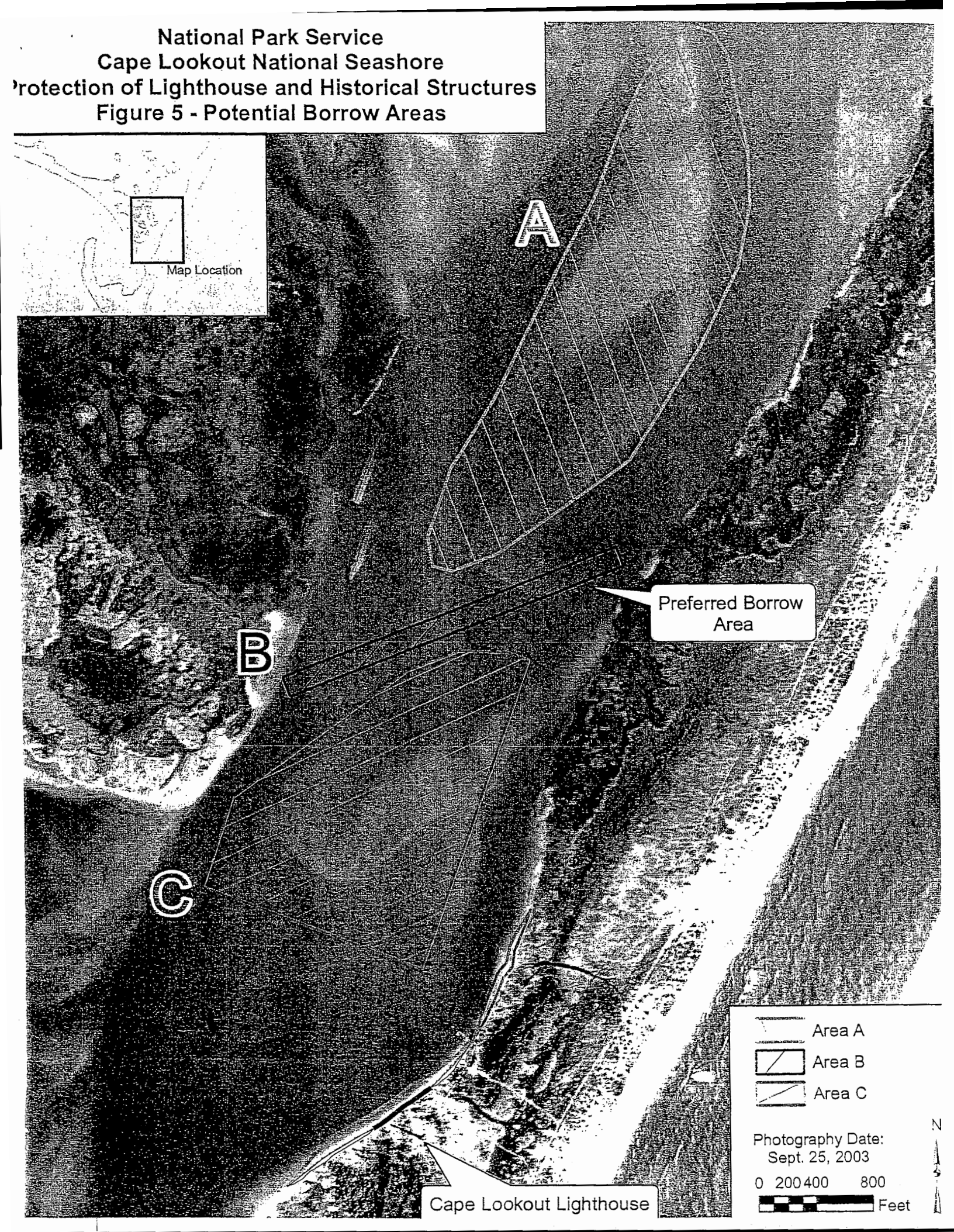
Berm
Structures
Beachfill Limits
GeotextileTube
N
Photography Date : Sept. 25, 2003
0 100 200 400
Feet

Geotextile Tube

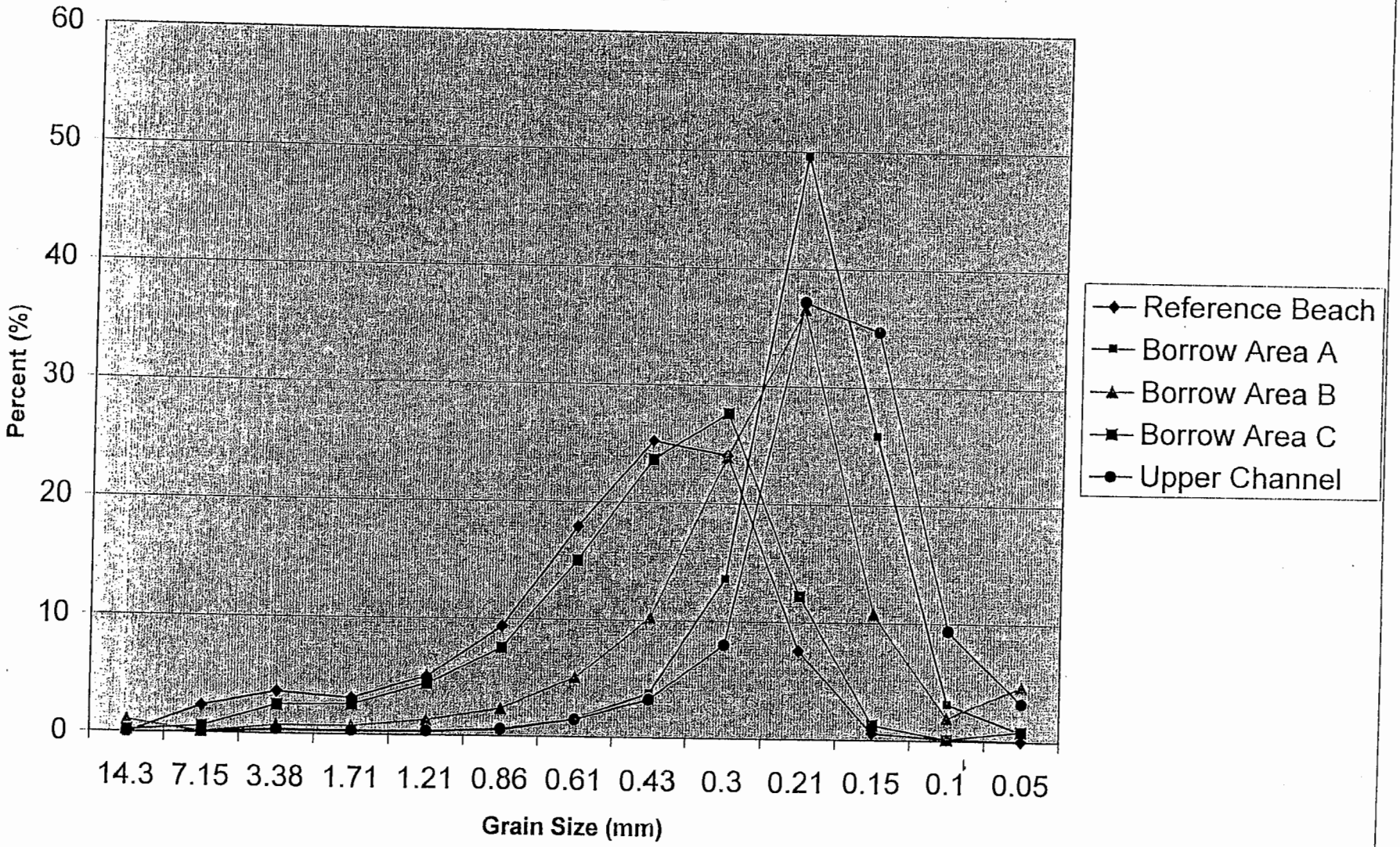


National Park Service
Cape Lookout National Seashore
Protection of Lighthouse and Historical Structures
Figure 4

National Park Service
Cape Lookout National Seashore
Protection of Lighthouse and Historical Structures
Figure 5 - Potential Borrow Areas



Cape Lookout - Grain Size Distribution
Figure 6



ASTM TERMINOLOGY

The basic reference for the Unified Soil Classification System is ASTM D 2487. Terms include:

Coarse-Grained Soils	More than 50 percent retained on a 0.075 mm (No. 200) sieve
Fine-Grained Soils	50 percent or more passes a 0.075 mm (No. 200) sieve
Gravel	Material passing a 75-mm (3-inch) sieve and retained on a 4.75-mm (No. 4) sieve.
Coarse Gravel	Material passing a 75-mm (3-inch) sieve and retained on a 19.0-mm (3/4-inch) sieve.
Fine Gravel	Material passing a 19.0-mm (3/4-inch) sieve and retained on a 4.75-mm (No. 4) sieve.
Sand	Material passing a 4.75-mm sieve (No. 4) and retained on a 0.075-mm (No. 200) sieve.
Coarse Sand	Material passing a 4.75-mm sieve (No. 4) and retained on a 2.00-mm (No. 10) sieve.
Medium Sand	Material passing a 2.00-mm sieve (No. 10) and retained on a 0.475-mm (No. 40) sieve.
Fine Sand	Material passing a 0.475-mm (No. 40) sieve and retained on a 0.075-mm (No. 200) sieve.
Clay	Material passing a 0.075-mm (No. 200) that exhibits plasticity, and strength when dry (PI ^{3} 4).
Silt	Material passing a 0.075-mm (No. 200) that is non-plastic, and has little strength when dry (PI < 4).
Peat	Soil of vegetable matter.

FIGURE 6a